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Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

PROGNOSTIC VALUE OF CALCIUM SCORING AS AN ADJUNCT TO STRESS MYOCARDIAL PERFUSION SCINTIGRAPHY IN END-STAGE RENAL DISEASE

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
Abstract Category: 16. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
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Authors: *William Edward Moody, Erica Lai Sze Lin, Nicola Edwards, Nicola Bloxham, Charles Ferro, Colin Chue, Jonathan Townend, Richard Steeds, University of Birmingham, Birmingham, United Kingdom*

Background: Coronary artery calcification (CAC) is a strong predictor of adverse cardiovascular (CV) events in the general population. Recent data confirm the prognostic utility of single photon emission computed tomographic imaging (SPECT) in end-stage renal disease (ESRD) but whether performing CAC scoring as part of hybrid imaging improves risk prediction in this population is unclear.

Methods: Prior to listing for transplantation, 226 consecutive ESRD patients (age 56 ± 11yr; male 58%) were identified after referral to a University hospital for CV risk stratification. All subjects met at least one of the following criteria: age ≥ 50yrs (73%), diabetes (37%), known ischemic heart disease (10%) or current angina (26%). Subjects underwent exercise treadmill or standard adenosine stress in those unable to achieve 85% maximal heart rate and had Technetium-99m SPECT with multislice CAC scoring (Siemens Symbia T16). The primary outcome was a composite of death or first major adverse CV event (MACE), defined as unstable angina, myocardial infarction, or late revascularisation (PCI or CABG more than 90 days after SPECT/CT).

Results: There were a total of 21 events after a median duration of 18 months (maximal follow up 3.5 years). Univariate analysis showed smoking ($P = 0.04$), diabetes mellitus ($P = 0.02$), left ventricular dysfunction ($P = 0.03$) and the presence of abnormal perfusion on SPECT ($P < 0.001$) were all associated with the composite primary outcome. An Agatston score of > 400, indicating severe coronary calcification, was not associated with all-cause mortality and/or adverse CV events. In a multivariate model, abnormal perfusion on SPECT was an independent predictor of all-cause death or MACE (HR, 3.57; $P = 0.01$). There was no association between abnormal perfusion and Agatston score. Patients who achieved > 7 METS were unlikely to have abnormal perfusion (NPV 80%).

Conclusion: This study supports the use of SPECT in ESRD for CV risk stratification and emphasizes the importance of functional status. These data do not provide evidence that CAC score helps to predict adverse outcomes in this population.